These elements must be certainly considered as a first approximation only.

Observatoire de l'Université Impériale,
  St. Petersburg : February 1888.

Southern Double Stars.   By the Rev. S. J. Johnson, M.A.

Although there do not seem to be any published measures of southern double stars at very low altitudes in this country, yet there are a few interesting objects which do not deserve to be neglected, and of which measures not quite without value can be got by an observer situated on the extreme south coast of England, if he will watch for the few favourable opportunities of a clear horizon when the star is near its highest attainable altitude in our land. The following are a few specimens of objects of this kind taken with a filar micrometer on a $3\frac{1}{4}$-inch equatorial during the last few years. The mean of four measures in each case is given.

No.	Year.		Position-angle.	Distance.
1	1881·92	ω Fornacis	240°·3	10″·4
2	1882·12	H 3945	66·9	—
3	1886·34	3 (κ) Centauri	109·4	7·6
4	1887·23	ξ Antliæ	209·0	10·0
5	1887·37	*f* Hydræ	189·4	12·4

Distance measurements of (2) could not be got. Very little illumination could be used. The colours of (2) are fine and prominent: red, blue. The companion of 3 (κ) *Centauri* seems to have a bluish tint. Measures of ξ *Antliæ* were rather discordant, but the mean good. The lat. of this place is about 50° 46′ 10″.

Melplash Vicarage, Dorset :
  1888, *March* 7.

On the Orbit of 70 (*p*) *Ophiuchi.*   By J. E. Gore.

As none of the orbits hitherto published for this interesting binary star represent recent measures satisfactorily, I have computed an orbit, using all available measures from 1819 to 1887, about 247 in number, and find the following provisional elements :—

Elements of 70 *Ophiuchi.*

P = 87·84 years.   Ω = 120° 5′ (1880·0)

T = 1807·65   λ = 171° 45′

e = 0·4912   a = 4″·50

γ = 58° 28′   μ = −4°·098

The following is a comparison between the recorded measures and the positions computed from the above elements. The observed position-angles have been corrected for the effect of precession to 1880·0 :—

Epoch.	Observer.	θ_o	θ_c	$\theta_o - \theta_c$	ρ_o	ρ_c	$\rho_o - \rho_c$
1779·76	Sir W. Herschel	89·45	99·38	(−9·93)	3·6	5·23	−1·63
1780·49	,,	...	...	...	4·4	5·12	−0·72
1781·73	,,	98·66	96·50	+2·16			
1802·25	,,	335·67	337·94	−2·27			
1804·41	,,	318·38	319·37	−0·99			
1819·64	Struve	168·17	168·12	+0·05			
1820·77	,,	159·87	162·15	−2·28			
1821·31	Herschel & South	155·88	159·73	−3·85	3·68	2·95	+0·73
1821·74	Struve	157·28	157·92	−0·64			
1822·42	Herschel & South	154·48	154·37	+0·11	4·85	3·27	+1·58
1822·64	Struve	153·58	153·86	−0·28			
1823·35	Herschel & South	153·29	152·23	+1·06			
1825·57	,,	147·80	146·18	+1·62	4·765	4·00	+0·765
1827·02	Struve	144·81	143·00	+1·81	4·37	4·32	+0·05
1827·51	Herschel & South	141·71	142·06	−0·35	5	4·42	+0·58
1828·71	Struve	139·92	139·87	+0·05	4·78	4·68	+0·10
1829·59	,,	137·72	138·40	−0·68	5·08	4·84	+0·24
1830·36	Herschel & South	137·83	137·30	+0·53	5·95	4·98	+0·97
1830·41	Bessel	135·33	137·22	−1·89	5·45	4·99	+0·46
1830·57	Dawes	137·13	136·98	+0·15	5·53	5·02	+0·51
1830·69	Bessel	135·43	136·79	−1·36	5·51	5·01	+0·50
1830·76	Smyth	136·17	136·68	−0·51	5·43	5·06	+0·37
1830·84	Struve	135·43	136·56	−1·13	5·31	5·08	+0·23
1831·52	Herschel & South	135·83	135·51	+0·32	5·97	5·19	+0·78
1831·68	Struve	134·43	135·31	−0·88	5·41	5·22	+0·19
1832·55	Dawes	132·44	134·20	−1·76	5·71	5·37	+0·34
1832·57	Herschel & South	135·24	134·18	+1·06	5·49	5·37	+0·12
1832·75	Struve	133·64	133·95	−0·31	5·55	5·39	+0·16
1833·42	Dawes	132·54	133·01	−0·47	6·14	5·49	+0·65
1833·59	Smyth	132·24	132·78	−0·54	6·0	5·53	+0·47
1834·47	Struve	130·85	131·72	−0·87	5·85	5·65	+0·20
1834·57	Dawes	130·35	131·60	−1·25	6·12	5·66	+0·46
1835·56	Smyth	130·36	130·46	−0·10	5·97	5·74	+0·23
1835·60	,,	130·56	130·42	+0·14	6·11	5·75	+0·36
1835·60	Struve	130·46	130·42	+0·04	6·10	5·75	+0·35

Epoch.	Observer.	θ_o	θ_c	$\theta_o - \theta_c$	ρ_o	ρ_c	$\rho_o - \rho_c$
1836·50	Encke	127·76	129·42	− 1·66	6·46	5·91	+ 0·55
1836·65	Herschel & South	129·06	129·26	− 0·20	6·97	5·93	+ 1·04
1836·66	Struve	129·26	129·25	+ 0·01	6·13	5·93	+ 0·20
1836·81	Smyth	128·36	129·10	− 0·74	6·19	5·95	+ 0·24
1837·46	Encke	127·97	128·42	− 0·45	6·72	6·06	+ 0·66
1837·64	Smyth	127·27	128·23	− 0·96	6·26	6·06	+ 0·20
1838·51	,,	126·27	127·33	− 1·06	6·25	6·13	+ 0·12
1838·56	Encke	126·37	127·28	− 0·91	6·63	6·13	+ 0·50
1839·51	,,	124·98	126·35	− 1·37	6·78	6·25	+ 0·53
1839·65	Dawes	125·58	126·22	− 0·64	6·55	6·27	+ 0·28
1839·87	Encke	125·48	126·00	− 0·52	6·34	6·30	+ 0·04
1840·35	Kaiser	127·68	125·55	+ 2·13	6·00	6·32	− 0·32
1840·59	Dawes	124·58	125·33	− 0·75	6·62	6·33	+ 0·29
1840·75	O. Struve	126·88	125·18	+ 1·70	6·59	6·34	+ 0·25
1841·44	Mädler	125·19	124·54	+ 0·65	6·45	6·44	+ 0·01
1841·65	O. Struve	125·69	124·34	+ 1·35	6·65	6·43	+ 0·22
1841·68	Dawes	123·19	124·31	− 1·12	6·63	6·42	+ 0·21
1841·74	Kaiser	123·19	124·26	− 1·07	6·53	6·42	+ 0·11
1842·39	Mädler	124·19	123·65	+ 0·54			
1842·53	Dawes	123·09	123·53	− 0·44	6·72	6·46	+ 0·26
1842·55	Smyth	122·19	123·51	− 1·32	6·64	6·46	+ 0·18
1842·59	Kaiser	122·39	123·48	− 1·09	6·48	6·47	+ 0·01
1842·62	Challis	124·79	123·46	+ 1·33	5·86	6·47	− 0·61
1842·66	Mädler	124·49	123·42	+ 1·07	6·25	6·47	− 0·22
1842·70	O. Struve	124·49	123·38	+ 1·11	6·62	6·47	+ 0·15
1843·53	Mädler	123·10	122·64	+ 0·46	6·42	6·52	− 0·10
1843·56	Challis	123·30	122·62	+ 0·68	6·69	6·52	+ 0·17
1843·72	Mädler	122·30	122·48	− 0·18	6·43	6·53	− 0·10
1844·57	,,	121·80	121·72	+ 0·08	6·48	6·58	− 0·10
1844·59	Challis	121·30	121·70	− 0·40	5·96	6·58	− 0·62
1844·71	O. Struve	121·30	121·60	− 0·30	6·62	6·59	+ 0·03
1845·43	Herschel & South	120·61	120·97	− 0·36	6·77	6·62	+ 0·15
1845·54	Mädler	120·61	120·88	− 0·27	6·58	6·62	− 0·04
1845·68	O. Struve	120·71	120·76	− 0·05	6·55	6·62	− 0·07
1846·01	Jacob	120·21	120·48	− 0·27	6·83	6·63	+ 0·20
1846·46	Hind	119·91	120·08	− 0·17	6·14	6·64	− 0·50
1846·56	Durham Obs.	116·91	120·00	− 3·09	7·43	6·64	+ 0·79
1846·57	Mädler	119·61	120·00	− 0·39	6·64	6·64	0·0
1846·73	O. Struve	121·11	119·86	+ 1·25	6·61	6·64	− 0·03

Epoch.	Observer.	θ_0	θ_c	$\theta_0 - \theta_c$	ρ_0	ρ_c	$\rho_0 - \rho_c$
1847·45	Durham Obs.	117·02	119·25	− 2·23	7·19	6·66	+ 0·53
1847·48	Smyth	119·52	119·23	+ 0·29	6·8	6·66	+ 0·14
1847·59	Mitchell	120·12	119·14	+ 0·98	5·53	6·66	− 1·13
1847·76	O. Struve	119·52	118·99	+ 0·53	6·50	6·66	− 0·16
1848·12	Dawes	118·62	118·68	− 0·06	6·80	6·67	+ 0·13
1848·50	Mädler	118·03	118·35	− 0·32	6·83	6·65	+ 0·18
1848·52	Bond	117·93	118·32	− 0·39	6·9	6·65	+ 0·25
1848·52	,,	117·53	118·32	− 0·79	6·8	6·65	+ 0·15
1848·79	O. Struve	118·33	118·11	+ 0·22	6·78	6·65	+ 0·13
1849·78	,,	117·63	117·27	+ 0·36	6·54	6·64	− 0·10
1850·48	Jacob	114·94	116 67	− 1·73	6·86	6·63	+ 0·23
1850·64	Mädler	116·54	116·53	+ 0·01	6·94	6·63	+ 0·31
1851·47	,,	115·24	115·83	− 0·59	6·67	6·62	+ 0·05
1851·67	O. Struve	115·24	115 66	− 0·42	6·52	6·62	− 0·10
1851·74	Mädler	115·34	115·60	− 0·26	6·67	6·62	+ 0·05
1852·44	Smyth	114·75	115·01	− 0·26	...	6·61	
1852·67	O. Struve	114·85	114·82	+ 0·03	6·55	6·61	− 0·06
1852·73	Mädler	114·55	114·77	− 0·22	6·56	6·61	− 0·05
1852·74	Jacob	113·85	114·77	− 0·92	6·73	6·61	+ 0·12
1853·54	Dembowski	116·25	114·05	+ 2·20	6·45	6·60	− 0·15
1853·60	Dawes	116·45	114·00	+ 2·45	6·48	6·60	− 0·12
1853·76	Mädler	113·15	113·86	− 0·71	6·56	6·59	− 0·03
1853·78	O. Struve	113·45	113·84	− 0·39	6·47	6·59	− 0·12
1854·08	Jacob	113·46	113·58	− 0·12	6·36	6·58	− 0·22
1854·58	Dembowski	113·36	113·15	+ 0·21	6·26	6·56	− 0·30
1854·68	Mädler	113·16	113·06	+ 0·10	6·31	6·56	− 0·25
1854·69	O. Struve	112 66	113·06	− 0·40	6·54	6·56	− 0·02
1854·73	Dawes	113·56	113·02	+ 0·54	6·33	6·56	− 0·23
1855·21	Dembowski	112·96	112·59	+ 0·37	6·52	6·53	− 0·01
1855·45	Secchi	111·46	112·30	− 0·84	6·25	6·52	− 0·27
1855·66	O. Struve	111·76	112·05	− 0·29	6·49	6·50	− 0·01
1855·66	Dawes	112·46	112·05	+ 0·41	6·51	6·50	+ 0·01
1855·69	,,	113·06	112·01	+ 1·05	6·46	6·50	− 0·04
1856·12	Jacob	111·77	111·87	− 0·10	6·45	6·47	− 0·02
1856·37	,,	111·27	111·57	− 0·30	6·39	6·45	− 0·06
1856·50	Mädler	111·37	111·35	+ 0·02	6·32	6·44	− 0·12
1856·63	Dembowski	111·57	111·33	+ 0·24	6·40	6·43	− 0·03
1856·73	O. Struve	111·57	111·22	+ 0·35	6·37	6·43	− 0·06
1857·13	Jacob	110·47	110·66	− 0·19	6·46	6·40	+ 0·06

Epoch.	Observer.	θ_o	θ_c	$\theta_o - \theta_c$	ρ_o	ρ_c	$\rho_o - \rho_c$
1857·42	Fletcher	112·18	110·46	+1·62	6·36	6·38	−0·02
1857·57	Dawes	109·88	110·29	−0·41	6·38	6·37	+0·01
1857·58	,,	110·08	110·28	−0·20	6·52	6·37	+0·15
1857·63	Dembowski	109·38	110·22	−0·84	6·31	6·37	−0·06
1857·67	Morton	109·98	110·19	−0·21	6·15	6·37	−0·22
1857·69	O. Struve	109·98	110·18	−0·20	6·40	6·37	+0·03
1858·12	Jacob	109·58	109·88	−0·30	6·10	6·33	−0·23
1858·39	Morton	108·48	109·68	−1·20	6·08	6·30	−0·22
1858·44	Dembowski	109·18	109·65	−0·47	6·09	6·30	−0·21
1858·63	Mädler	108·78	109·47	−0·69	5·94	6·28	−0·34
1858·72	O. Struve	108·68	109·38	−0·70	6·21	6·27	−0·06
1859·68	,,	108·38	108·45	−0·07	6·19	6·21	−0·02
1859·72	Dawes	109·18	108·41	+0·77	6·24	6·21	+0·03
1859·75	Auwers	108·88	108·38	+0·50	6·61	6·21	+0·40
1860·61	Secchi	106·19	107·53	−1·34	6·07	6·12	−0·05
1860·74	Auwers	107·79	107·40	+0·39	6·49	6·11	+0·38
1861·46	Main	106·90	106·65	+0·25	5·89	6·03	+0·14
1861·63	O. Struve	106·30	106·48	−0·18	5·88	6·01	−0·13
1861·97	Mädler	105·90	106·12	−0·22	5·85	5·97	−0·12
1862·62	Dembowski	105·40	105·43	−0·03	5·73	5·90	−0·17
1862·72	Mädler	105·10	105·33	−0·23	5·70	5·89	−0·19
1862·77	O. Struve	105·10	105·28	−0·18	5·85	5·88	−0·03
1863·5	Wash. Obs.	106·11	104·45	+1·66	5·19	5·86	−0·67
1863·5	,,	106·81	104·45	+2·36	5·74	5·86	−0·12
1863·5	,,	106·21	104·45	+1·76	6·04	5·86	+0·18
1863·5	,,	105·81	104·45	+1·36	5·87	5·86	+0·01
1863·5	,,	104·91	104·45	+0·46	5·72	5·86	−0·14
1863·5	,,	104·71	104·45	+0·26	5·74	5·86	−0·12
1863·51	Dembowski	104·11	104·45	−0·34	5·60	5·80	−0·20
1863·55	Romberg	104·41	104·41	0·0	5·76	5·80	−0·04
1864·48	Engelmann	104·71	103·35	+1·36	5·42	5·67	−0·25
1864·60	Dembowski	103·41	103·21	+0·20	5·46	5·67	−0·21
1865·51	,,	102·22	102·13	+0·09	5·37	5·53	−0·16
1865·53	Romberg	104·42	102·11	+2·31	5·30	5·53	−0·23
1865·55	,,	103·82	102·08	+1·74	5·24	5·53	−0·29
1865·62	Kaiser	100·52	101·99	−1·47	5·31	5·52	−0·21
1865·72	O. Struve	102·62	102·86	−0·24	5·32	5·50	−0·18
1865·80	,,	101·12	101·76	−0·64	5·26	5·49	−0·23
1866·49	Talmage	101·73	100·86	+0·87	5·26	5·40	−0·14

Epoch.	Observer.	θ_0	θ_c	$\theta_0-\theta_c$	ρ_0	ρ_c	$\rho_0-\rho_c$
1866·61	Secchi	101·03	100·71	+0·32	5·27	5·38	−0·11
1866·66	O. Struve	100·33	100·65	−0·32	5·29	5·38	−0·09
1867·01	Dembowski	100·97	100·19	+0·78	5·17	5·32	−0·15
1867·41	Main	98·03	99·64	−1·61	5·33	5·26	+0·07
1867·44	Knott	99·73	99·60	+0·13	5·22	5·25	−0·03
1867·52	Talmage	100·43	99·49	+0·94			
1868·46	Dembowski	98·94	98·19	+0·75	4·85	5·10	−0·25
1868·46	Main	97·74	98·19	−0·45	5·27	5·10	+0·17
1868·56	Knott	98·44	98·04	+0·40	4·97	5·08	−0·11
1868·64	Talmage	101·04	97·92	+3·12	5·49	5·07	+0·42
1868·69	Main	101·74	97·85	+3·89	4·96	5·07	−0·11
1868·71	O. Struve	99·04	97·82	+1·22	4·69	5·06	−0·37
1868·72	Dunér	97·44	97·80	−0·36	4·83	5·06	−0·23
1868·90	Brünnow	97·94	97·53	+0·41	4·92	5·03	−0·11
1869·60	Dembowski	96·44	96·48	−0·04	4·71	4·90	−0·19
1869·61	Talmage	100·14	96·46	+3·68	5·31	4·90	+0·41
1869·69	Dunér	96·84	96·34	+0·50	4·58	4·88	−0·30
1870·30	Gledhill	94·65	95·35	−0·70	4·6	4·78	−0·18
1870·45	Main	95·05	95·10	−0·05	4·83	4·75	+0·08
1870·47	,,	94·15	95·07	−0·92	4·80	4·75	+0·05
1870·50	,,	96·35	95·03	+1·32	4·84	4·74	+0·10
1870·51	Dembowski	94·45	95·01	−0·56	4·56	4·74	−0·18
1870·60	Talmage	94·35	94·87	−0·52	4·62	4·72	−0·10
1870·72	Gledhill	93·15	94·64	−1·49	4·3	4·70	−0·40
1870·79	Main	96·55	94·52	+2·03	4·65	4·69	−0·04
1871·48	Wilson & Seabroke	92·75	93·31	−0·56	4·6	4·56	+0·04
1871·49	,,	92·45	93·29	−0·84	4·60	4·56	+0·04
1871·50	Gledhill	92·85	93·27	−0·42	4·4	4·56	−0·16
1871·53	Dembowski	92·55	93·22	−0·67	4·27	4·55	−0·28
1871·55	Talmage	96·65	93·18	+3·47	4·34	4·55	−0·21
1871·59	Knott	94·87	93·11	+1·76	4·30	4·54	−0·24
1871·63	Gledhill	93·05	93·03	+0·02	4·4	4·53	−0·13
1871·72	Dunér	92·55	92·86	−0·31	4·20	4·52	−0·32
1871·80	Gledhill	92·05	91·98	+0·07	4·08	4·50	−0·42
1872·49	Dembowski	90·66	91·39	−0·73	4·08	4·38	−0·30
1872·49	Main	90·76	91·39	−0·63	4·28	4·38	−0·10
1872·49	Ferrari	91·46	91·39	+0·07	4·30	4·38	−0·08
1872·49	Wilson & Seabroke	...	91·39	...	4·61	4·38	+0·23
1872·50	,,	90·66	91·37	−0·71	4·32	4·38	−0·06

Epoch.	Observer.	θ_0	θ_c	$\theta_0 - \theta_c$	ρ_0	ρ_c	$\rho_0 - \rho_c$
1872·52	Wilson & Seabroke	91·86	91·33	+0·53	4·17	4·38	−0·21
1872·54	,,	91·76	91·29	+0·47	4·07	4·37	−0·30
1872·60	O. Struve	93·56	91·17	+2·39	4·08	4·35	−0·27
1873·41	Main	88·86	89·57	−0·71	4·20	4·15	+0·05
1873·51	Dembowski	88·76	89·37	−0·61	3·89	4·13	−0·24
1873·51	Gledhill	89·46	89·37	+0·09			
1873·51	Wilson & Seabroke	88·76	89·37	−0·61	4·1	4·13	−0·03
1873·55	Talmage	84·66	89·28	(−4·62)	3·95	4·12	−0·17
1873·63	Wilson & Seabroke	88·46	89·09	−0·63	3·93	4·11	−0·18
1873·73	Main	88·66	88·36	+0·30	4·23	4·09	+0·14
1874·47	,,	88·67	87·13	+1·54	4·00	3·96	+0·04
1874·56	Dembowski	86·07	86·92	−0·85	3·66	3·94	−0·28
1874·58	Talmage	88·57	86·87	+1·70	3·67	3·94	−0·27
1874·69	O. Struve	87·37	86·59	+0·78	3·78	3·92	−0·14
1874·73	Gledhill	87·47	86·49	+0·98	3·92	3·91	+0·01
1875·52	Dembowski	83·68	84·48	−0·80	3·48	3·77	−0·29
1875·62	Wilson & Seabroke	(95·08)	84·20	(+10·88)	3·49	3·75	−0·26
1875·62	Schiaparelli	84·08	84·20	−0·12	3·44	3·75	−0·31
1875·65	Main	84·78	84·12	+0·66	3·84	3·74	+0·10
1876·52	Doberck	78·88	81·70	−2·82			
1876·54	Plummer	80·18	81·64	−1·46	3·55	3·55	0·0
1876·59	Schiaparelli	81·18	81·48	−0·30	3·34	3·54	−0·20
1876·61	Wilson & Seabroke	80·48	81·42	−0·94			
1876·61	,,	80·38	81·42	−1·04	3·37	3·54	−0·17
1876·62	Dunér	81·48	81·39	+0·09	...	3·54	
1877·51	Dembowski	77·58	78·56	−0·98	3·086	3·33	−0·244
1877·51	Flammarion	78·09	78·56	−0·47	3·22	3·33	−0·11
1877·52	Doberck	77·59	78·53	−0·94	3·46	3·33	+0·13
1877·55	Hall	75·81	78·42	−2·61	3·36	3·33	+0·03
1877·58	Jedzrejewicz	79·39	78·31	+1·08	3·180	3·32	−0·14
1877·65	Plummer	78·49	78·01	+0·48	3·39	3·30	+0·09
1877·66	Schiaparelli	77·33	78·01	−0·68	3·121	3·30	−0·179
1877·68	Cin. Obs.	78·49	77·94	+0·55	3·12	3·30	−0·18
1878·51	Dembowski	74·52	74·92	−0·40	2·966	3·13	−0·164
1878·54	Doberck	75·39	74·81	+0·58	3·03	3·12	−0·09
1879·41	Schiaparelli	69·2	71·23	−2·03	2·84	3·11	−0·27
1879·50	,,	69·83	70·87	−1·04	2·845	2·92	−0·075
1879·59	Hall	71·32	70·51	+0·81	2·93	2·90	+0·03
1879·64	Schiaparelli	67·9	70·30	−2·40	2·94	2·89	+0·05

Epoch.	Observer.	θ_0	θ_c	$\theta_0-\theta_c$	ρ_0	ρ_c	$\rho_0-\rho_c$
1879·66	Jedzrejewicz	68·6	70·22	−1·62	3·039	2·89	+0·149
1880·49	Franz	62·1	66·33	(−4·23)	2·69	2·72	−0·03
1880·57	Hall	65·5	65·83	−0·33	2·74	2·70	+0·04
1880·66	Schiaparelli	64·88	65·28	−0·40	2·692	2·68	+0·012
1880·66	Jedzrejewicz	62·8	65·28	−2·48	2·75	2·68	+0·07
1881·53	Hall	60·7	59·87	+0·83	2·49	2·51	−0·02
1882·564	,,	56·4	52·80	+3·60	2·31	2·29	+0·02
1882·72	Engelmann	51·63	52·46	+0·83	2·314	2·28	+0·034
1883·49	Perrotin	45·62	46·48	−0·86	2·28	2·15	+0·13
1883·579	Young	43·20	45·75	−2·55	2·45	2·14	+0·31
1883·594	Hall	47·7	45·65	+2·05	2·28	2·14	+0·14
1883·68	Küstner	45·23	44·92	+0·31	2·511	2·11	+0·401
1883·72	Engelmann	43·64	44·61	−0·97	2·25	2·11	+0·14
1884·56	Perrotin	34·54	36·98	−2·44	2·088	2·00	+0·088
1884·588	Hall	37·6	36·71	+0·89	2·16	1·96	+0·20
1884·69	Engelmann	35·28	35·77	−0·49	2·204	1·96	+0·244
1885·566	Hall	29·5	28·24	+1·26	1·87	1·90	−0·03
1885·64	Engelmann	24·32	27·60	−3·28	2·06	1·90	+0·16
1886·528	Hall	13·8	16·64	−2·84	1·98	1·88	+0·10
1886·67	Engelmann	14·90	14·90	0·0	1·88	1·87	+0·01
1887·611	Hall	3·6	4·24	−0·64	1·93	1·83	+0·10
1887·812	Tarrant	3·49	1·97	+1·52	1·91	1·83	+0·08
1887·86	Young	2·50	1·43	+1·07	(2·35)	1·84	(+0·51)

The formulæ for the calculation of an ephemeris are as follows :—

$$u-28\cdot14\sin u=-4°\cdot098\,(t-1807\cdot65)$$

$$\tan\tfrac{1}{2}V=[0\cdot2335038]\tan\tfrac{1}{2}u$$

$$\tan(\theta-120°\,5')=[9\cdot7185017]\tan(V+171°\,45')$$

$$\rho=4''\cdot50\,(1-0\cdot4912\cos u)\,\frac{\cos(V+171°\,45')}{\cos(\theta-120°\,5')}.$$

Observations of the Variable Star S (10) Sagittæ. By J. E. Gore.

The following are my observations of this short period variable in the year 1887. They form a continuation of the observations given in the *Monthly Notices* for March 1887. The comparison stars are as before :—

					Mag.
11 Sagittæ	...	...	...	...	5·8
9 Sagittæ	...	...	...	...	6·6
DM + 16°, 4086	...	...	...	7·0